



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,441	07/25/2003	Chien-Min Sung	20303.CIP	3422
20551	7590	05/23/2006	EXAMINER	
THORPE NORTH & WESTERN, LLP. 8180 SOUTH 700 EAST, SUITE 200 SANDY, UT 84070			MARCHESCHI, MICHAEL A	
		ART UNIT	PAPER NUMBER	
		1755		

DATE MAILED: 05/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/627,441	SUNG, CHIEN-MIN	
	<b>Examiner</b>	<b>Art Unit</b>	
	Michael A. Marcheschi	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 02 May 2006.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-35 is/are pending in the application.  
4a) Of the above claim(s) 1-26 is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 27-35 is/are rejected.

7)  Claim(s) 31 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The instant office action defines new rejections because solidified molten braze alloy, as previously defined, was interpreted to mean that the particles were coated with a **solidified** alloy. Now the claim reads that the particle are coated with a **molten** alloy. This amendment constitutes the new ground of rejections in this action.

Applicant's election without traverse of Group II, claims 27-35 in the reply filed on 5/2/06 is acknowledged.

The disclosure is objected to because of the following informalities:

The continuing data is not updated (patent number of parent not defined).

Appropriate correction is required.

Applicants amendment does not updated the continuing data (on page 1).

Claim 31 is objected to because of the following informalities:

Claim 31 defines "27-31 30" and this should be "27-30". Appropriate correction is required.

Claims 27-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 is indefinite because the examiner is unclear as to how the coating occurs. How can superabrasive particles be each coated with a molten braze without the use of a perform or support to hold said particles during application of said coating? In addition, are the particles thrown into a molten bath, and then a plurality of particles taken out from said bath and solidified? Finally, is the molten braze infiltrated throughout a superabrasive particle mass to form the coating and at the same time bond the particles together.

In addition , the claim is indefinite because the examiner is unclear as to what the initial source of the braze is to form the molten braze and the time at which the molten braze is formed. Is the source a powder that is melted **prior** to coating, is a powder coated on the particles and at the same time melted to form a molten alloy or is the source an alloy in paste form?

The other claims are indefinite because they depend on indefinite claims.

A metallurgical bond is defined in the specification on page 6, lines 22-26 and a braze alloy is defined on page 6, line 33-page 7, line 3 and page 6, lines 9-16 (reactive element) and thus the claims are interpreted in light of the definitions.

**NEW ART REJECTIONS:**

Claims 27, 28, 29, 31, 32 and 34 are rejected under 35 U.S.C. 103(a) as obvious over EP 570635 in view of Slack et al. (502).

The primary reference teachings are defined in the previous office action which are incorporated herein by reference.

Slack et al. teaches in column 3, lines 30+ that a well known way to coat diamond (superabrasive) is by applying a molten coating thereon.

With respect to claims 27-28, the primary reference does not apply a molten coating to the superabrasive. This, however, is obvious to the skilled artisan because the secondary reference teaches that this is a conventional way to coat superabrasive particles and it is the examiners position that the substitution of one coating technique for another, that is used for the same purpose, is clearly within the scope of the skilled artisan. With this being obvious, the primary reference teaches that the coated particles are bonded together by the coating, thus if the coating is a molten braze alloy coating, the bond holding the particles together is a braze alloy. With respect to claims 31-32 (support material), the abrasive compacts of the primary reference are brazed onto a cutting surface and it is the examiners position that brazing encompasses and makes obvious metallurgically bonding the particles to a support because bonding of metals together by brazing encompasses metallurgically bonding.

The limitation of claim 29 is obvious because the performance of two steps simultaneously, which have previously been performed in sequence was held to have been obvious. *In re Tatincloux* 108 USPQ 125 (CCPA 1955).

With respect to claim 34, it is the examiners position that the cutting surface and the bonded coated particles are in layer form, especially since applicant does not define what is meant by this.

Claims 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 570635 in view of Slack et al. (502), as applied to claims 27 and 32 above, alone or further in view of Sung et al. (568).

The limitations of claims 30 and 33 are obvious because the EP reference states that the abrasive compact can be any form or shape, thus any form or shape suggests that the individual abrasive can be positioned in any manner, including a predetermined manner. In the alternative, one skilled in the art would have appreciated the desirability of using a predetermined pattern of abrasive particles depending on the abrasive qualities sought. This concept and the benefits obtained using a predetermined pattern are clearly shown by the secondary reference.

Claims 27, 28 and 30-33 are rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Sung et al. (641).

The reference teaches in column 5, line 62-column 6, line 29, column 9, lines 1-15 and column 13, lines 26-29, a method of making an abrasive tool which comprises infiltrating a matrix support material having diamond grains disposed therein in a predetermined pattern with a liquid braze alloy (this broadly breads on a molten material).

Claims 27 and 30 are anticipated by the above teachings because once the braze is solidified, the diamond particles will be bonded together. With respect to the coating aspect, the braze infiltrates the diamond/matrix materials thus, coating of the diamond particles by the infiltrating braze is apparent. With respect to the metallurgical bonding, since the braze bonds to the matrix support and both the braze and the support are metallic materials, metallurgical bonding between these two materials is apparent. Finally, the examiner acknowledges that the reference uses a matrix support material (provides this material in the method), however, “consisting essentially of” does not clearly exclude this additional step absent clear evidence to the contrary.

With respect to claim 28, the material is first infiltrated (i.e. coating is apparent) and then the braze is solidified, thus reading on this claim.

Claims 31-33 are anticipated by the reference because the reference teaches in column 13, lines 26-29 that the matrix carrier can be metallurgically bonded (brazed) to a tool body. As an alternative to the anticipation of claim 31, defined above, the infiltration a matrix support material having diamond grains disposed therein in a predetermined pattern with a liquid braze alloy also reads on (anticipates) the claims are written.

In the alternative, no distinction is seen to exist because the reference teaches a method which involves all of the claimed steps

Claim 34 is rejected under 35 U.S.C. 103(a) as obvious over Sung et al. (641).

With respect to claim 34, it is the examiners position that the cutting surface and the bonded coated particles are in layer form, especially since applicant does not define what is meant by this.

Claim 35 is rejected under 35 U.S.C. 103(a) as obvious over Sung et al. (641).

With respect to claim 35, the bonding of multiple layers, Sung et al. teaches in column 9, lines 1-14 the desirability of bonding multiple layers together, thus optimizing the abrasive performance of the tool. Although the bonding mechanism is not clearly disclosed, one skilled in the art would have appreciated that bonding two metal together is effective with metallurgical bonding.

Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

The examiner acknowledges the declaration filed 5/2/06, This declaration has been considered and in view of said declaration and applicants remarks in the amendment, the examiner withdraws the rejection based on Sung et al. (276).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-12331233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MM  
5/06

Michael A. Marcheschi  
Primary Examiner  
Art Unit 1755